

*Gambaryan, L.S.*  
AUTHORS:

Gambaryan, L. S., and Grigoryan, G. Ye. 20-3-50/52

TITLE:

Functional Adjustment in an Intact and a  
Disturbed Motion Analyser (K funktsional'nyy perestroykam v  
intaktnom i povrezhdennom dvigatel'nom analizatore)

PERIODICAL:

Doklady AN SSSR, 1957, Vol. 117, Nr 3, pp. 535 - 538 (USSR)

ABSTRACT:

The authors examined the character and the peculiarities of the functions of the intact and the disturbed motion analyser at an intracentral adjustment at the aspect of the ontogenetic evolution. Three series of experiments have been carried out with dogs. At the first series extremities were amputated in many variations. The second series studied the damage of the spinal tracks of the proprioceptive signalization. At the third series also the whole side-half of the spinal cord was disturbed. At an amputation of two extremities (one foreleg and the opposite hindleg) with very young dogs it was illustrated that even after 40 days the animals were not able to use the left over extremities. The same operation with older animals took a much better course and the coordination adjustment occurred very rapidly, already on the first day after the operation. The compensation of the disturbed functions could be followed by the eyes of the experimentator..▲ one-sided amputation of two

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Functional Adjustment in an Intact and a  
Disturbed Motion Analysis,

20-3-50/52

extremities appears to be a more complicated damage and demands a riper central-peripheral structures of the stato-kinetic apparatus. The adjustment of the stato-kinetic coordination at an amputation of only one hind-extremity took place rapidly at all stages of age. The experiments proved that the rapidity and the perfection of the functional adjustment increases with the growing up of the animals. This leads to the assumption, that it depends on two closely connected factors: a) on the structural-functional specialization and differentiation of the central-peripheral stato-kinetic apparatus together with the progressive growing of the animal and b) on the mobility and dynamics of the correlations between the center and the periphery during the ontogenetic development. At a removal of the back-column of the spinal cord along several segments of the middle-breast-section the animal started to move on its left over extremities no matter whether the amputation has been carried out before or after the removal of the column (Fig. 2b and 3). It was difficult to detect any signs of ataxy. Experiments of the third series with dogs showed, that they were able to move already on the first day after the operation on 3 paws. With grown-up animals this operation led to a longer

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Functional Adjustment in an Intact and a  
Disturbed Motion Analyser.

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lasting disturbance. This slow readjustment of the functions after such an operation with grown-up animals can be brought into connection as well with the higher specialization and localisation of the functions in the nervous system during growth as with the intensification of phenomena during the spinal shock in the course of the ontogenetic evolution. Thus it can be deduced as well from this present as from precedent experiments, that the functional adjustments in the damaged organism, which reflect the dynamic relations of the central-peripheral apparatus (according to the kind of damage and the age of the experimental animal), occur in a different way and with different velocity. There are 2 figures, and 11 references, 11 of which are Slavic.

**ASSOCIATION:** Scientific Research Institute for Obstetrics and Gynecology of the Ministry of Public Health, Armenian SSR  
(Nauchno-issledovatel'skiy institut akusherstva i ginekologii Ministerstva zdravookhraneniya ArmSSR)

**PRESENTED:** July 17, 1957, by A. D. Speranskiy, Academician

**SUBMITTED:** May 5, 1957

**AVAILABLE:** Library of Congress  
Card 3/3

MARKARYAN, P.A.; GAMBARYAN, L.S.; GRIGORYAN, G.Ye.

Materials on the study of compensatory adaptations in animals.  
Izv. AN Arm.SSR. Biol. i sel'khoz.nauki 11 no.8:47-52 Ag '58.  
(MIRA 11:10)

1. Fiziologicheskaya laboratoriya Nauchno-issledovatel'skogo  
instituta akusherstva i ginekologii Minsdrava ArmSSR.  
(ANIMAL LOCOMOTION)

GAMBARYAN, L.S. (Yerevan)

Function of a damaged motor analyzer [with summary in English]  
Arkhn.pat. 20 no.6:37-43 '58 (MIRA 11:7)

1. Iz fiziologicheskoy laboratorii nauchno-issledovatel'skogo  
instituta akusherstva i ginekologii (dir. - prof. P.A. Markaryan)  
Ministerstva zdravookhraneniya ArmSSR.

(CENTRAL NERVOUS SYSTEM, physiology.

eff. of damages of motor analyzer on various levels  
on conditioned defense reflexes (Rus))

(REFLEX, CONDITIONED.

eff. of damages of motor analyzer on various levels on  
defense reflexes (Rus))

GAMBARYAN, Levon Sarkisovich

[Functional and anatomical structure of the conditioned motor reflex] O funktsional'noi i anatomicheskoi strukture uslovnogo dvigatel'nogo refleksa. Brevan, Izd-vo Akad.nauk Armianskoi SSR, 1959. 43 p.

(MIRA 13:8)

(CONDITIONED RESPONSE)

GAMBARYAN, L. S.

Evaluating the functional significance of supplementary pathways of proprioceptive signaling. Izv. AN Arm. SSR. Biol. nauki  
12 no.2:33-40 F '59. (MIRA 12:9)

1. Fiziologicheskaya laboratoriya Nauchno-issledovatel'skogo  
instituta akusherstva i ginekologii Minzdrava Armyanskoy SSR.  
(SPINAL CORD) (MUSCULAR SENSE)

GAMBARYAN, L.S.

Spinal shock caused by injuring dorsal segments of the spinal  
cord [with summary in English]. Fiziol.zhur. 45 no.1:48-55  
Ja '59. (MIRA 12:2)

1. From the Physiological laboratory Research Institute of obstetrics  
and gynaecology Department of health, Armenian SSR.  
(SPINAL CORD, physiol.  
spinal shock after inj. of dorsal columns (Rus))



17(1)

AUTHOR:

Gambaryan, L. S.

SOV/20-125-2-59/64

TITLE:

Motor Reactions Accompanying Traumas of the Cerebellum and of the Posterior Columns of the Spinal Cord (Dvigatel'nyye reaktsii pri povrezhdenii mozghechka i zadnikh stolbov spinnogo mozga)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 446-449 (USSR)

ABSTRACT:

The author studied the motor reactions following total and partial removal of the cerebellum. It was removed by the method described in reference 6, the posterior columns of the spinal cord by that described in reference 7. In the first series of experiments the kinetics and the form of manifestation of conditioned electric defensive reflexes in the above-mentioned traumas of the nervous system were studied. Conditioned reflexes were developed by the conservative method (Ref 8) for one of the hind extremities. 5 young dogs and 1 adult dog were used for the experiment. The reflexes could be developed regardless of the degree of the lesion and were distinctly manifest. At a stage when conditioned reflexes were clearly developed the gait of the animals was

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SOV/20-125-2-59/64

Motor Reactions Accompanying Traumas of the Cerebellum and of the Posterior Columns of the Spinal Cord

characterized by a marked cerebellar ataxia. At this stage the posterior columns were removed in the young dog. Because of the ataxia no changes of locomotion due to the removal of columns could be found. Consequently the experiments of the first series showed that, although - in opposition to some assertions (Ref 9) - the total absence of the cerebellum influences the kinetics of the development of conditioned electric defensive reflexes, it does not prevent the manifestation of conditioned tonic reaction. In the IIInd series of experiments the author studied the role of the cerebellum in the assurance of intracentral functional adaptation processes, which arise through various combinations of amputations of extremities. 10 dogs and 1 cat were used. Some of their legs were amputated when disturbances conditioned by the cerebellum had been compensated to a certain degree. The results obtained indicate that in certain cases of intracentral functional adaptation the role of the cerebellum is so great that even the cortical mechanisms of the cerebrum are not sufficient to compensate the disturbed functions. It may be assumed that the described disturbances of statokinetic coordination in

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Motor Reactions Accompanying Traumas of the Cerebellum and of the Posterior Columns of the Spinal Cord

the amputated animals are mainly related to the abolition of the central mechanisms of the vestibular apparatus which is connected with the palaeocerebellum. Experiments made on 6 month old dogs, which could walk well on two remaining legs (right or cross-wise), showed that, if the cerebellum remains intact, bilateral destruction of the labyrinths only causes a short disturbance of locomotor functions. After 8 - 16 days the animals began to walk on 2 supporting points, though they still lost their balance after a few steps. Later on their gait became more even. Therefore the described disturbances of motor functions caused by a trauma of the cerebellum are mainly related to the destruction of the channels and mechanisms of proprioceptive signalization. They are represented in the head ganglion of the proprioceptive system. This means, however, that the cerebellum is one of the links in the structure of the motor analyzer in which the afferent analysis and synthesis of the signals of the muscle-joint apparatus is made (Ref 12). There are 3 figures and 12 references, 10 of which are Soviet.

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507/20-125-2-59/64

Motor Reactions Accompanying Traumas of the Cerebellum and of the Posterior Columns of the Spinal Cord

ASSOCIATION: Institut fiziologii im. I. P. Pavlova Akademii nauk SSSR  
(Institute of Physiology imeni I. P. Pavlov of the Academy  
of Sciences, USSR)  
Nauchno-issledovatel'skiy institut akusherstva i ginekologii  
Ministerstva zdravookhraneniya ArmSSR  
(Scientific Research Institute for Obstetrics and Gynaecology  
of the Ministry of Public Health of the Armenian SSR)

PRESENTED: November 14, 1958, by K. M. Bykov, Academician

SUBMITTED: November 14, 1958

Card 4/4

GAMBARYAN, L. S., Doc Med Sci -- (diss) "Function of an injured muscle analyzer." Yerevan-Ryazan', 1960. 28 pp; (Ministry of Public Health RSFSR, Ryazan Medical Inst im Academician I. P. Pavlov); 250 copies; price not given; list of author's work on pp 27-28; (KL, 27-60, 158)

GAMBARYAN, L.S.

Electrophysiological basis for "Supplementary" pathways in  
proprioceptive signaling. Dokl.AN Arm.SSR 30 no.3:173-185  
'60. (MIRA 13:8)

1. Kafedra normal'noy fiziologii i-go Moskovskogo  
meditsinskogo instituta im. I.M.Sechenova.  
(NERVOUS SYSTEM)

GAMBARYAN, L.S.

Disorders of motor functions in injuries of the cerebellum and posterior columns of the spinal cord. Fiziol. zhur. 46 no. 5:516-525 My '60. (MIRA 13:12)

1. From the Laboratory of Interoceptive Conditioned Reflexes of the Pavlov Physiological Institute, Leningrad.  
(CEREBELLUM—WOUNDS AND INJURIES)  
(SPINAL CORD—WOUNDS AND INJURIES) (MOVEMENT DISORDERS)

GAMBARYAN, L.S.

Spinal pathways of cortical projection of proprioceptive signalling.  
Fiziol. zhur. SSSR 46 no. 9:1098-1104 S '60. (MIRA 13:10)

1. From the Chair of Normal Physiology, Sechenov 1-st Medical  
Institute.

(CEREBRAL CORTEX) (SPINAL CORD)



GAMBARYAN, L.S.; MADATOVA, I.R.

Paths of interaction of the cerebral hemispheres in the case  
of complete section of the corpus callosum. Dokl. AN Arm. SSR  
32 no.4:219-223 '61. (MIRA 14:8)

1. Sektor radiobiologii Akademii nauk Armyanskoy SSR, Pred-  
stavleno akademikom AN Armyanskoy SSR L.A. Oganesy<sup>a</sup>nom.  
(BRAIN)

GAMBARYAN, Leon Sarkisovich; POLEZHAYEV, Ye.F., red.; MATVEYEVA, M.M.,  
tekhn. red.

[Problems of the physiology of the motor analyser; an  
experimental investigation] Voprosy fiziologii dvigatel'nogo  
analizatora; eksperimental'noe issledovanie. Moskva, Medgiz,  
1962. 238 p. (MIRA 15:5)  
(CONDITIONED RESPONSE) (MOVEMENT (PHYSIOLOGY))

GAMBARYAN, L. S.; GEZALYAN, L. S.; GARIBYAN, A. A.; AYRAPETYAN, S. A.

Role of the cortical section of the vestibular analyzer in the mechanisms of statokinetic coordination. Izv. AN Arm. SSR, Biol. nauki 15 no.4:59-65 Ap '62. (MIRA 15:7)

1. Fiziologicheskaya laboratoriya Nauchno-issledovatel'skogo instituta akusherstva i ginekologii Ministerstva zdravookhraneniya Armyanskoy SSR i fiziologicheskaya gruppa Sektora radiobiologii AN Armyanskoy SSR.

(LABYRINTH(EAR))

GAMBARYAN, L.S.; MADATOVA, I.R.

Interaction between the cerebral hemispheres of the brain  
following total resection of the corpus callosum. Fiziol.  
zhur. 48 no.4:422-427 Ap '62. (MIRA 15:6)

1. From the Physiological Group, Radiobiological Section,  
Armenian S.S.R. Academy of Sciences, Erevan.  
(BRAIN)

GAMBARYAN, Leon Sarkisovich; SHUSTIN, N.A., otv. red.; ANDREASYAN,  
V.B., red. izd-va; GOROYAN, G.L., tekhn. red.

[Physiological methods for research on higher nervous  
activity] Fiziologicheskie metodiki issledovaniia nervnoi  
deiatel'nosti. Erevan, Izd-vo AN Armianskoi SSR, 1963. 257 p.  
(MIRA 16:4)

(CONDITIONED RESPONSE) (SURGERY, EXPERIMENTAL)

GAMBARYAN, L.S.; MARKARYAN, L.P.

Role of the cerebellum in the sexual function of female dogs. *Physiol. bohemoslov.* 12 no.1:76-80 '63.

1. Laboratory of Physiology, Section of Radiobiology, Armenian Academy of Sciences and Laboratory of Physiology, Institute of Obstetrics and Gynaecology, Yerevan, Armenian SSR.

(CEREBELLAR CORTEX) (SEX BEHAVIOR) (REFLEX CONDITIONED)

GAMBARYAN, L.S.; GARIBYAN, A.A.

Role of the vestibular analyzer in the mechanisms of static and kinetic coordination. Izv. AN Arm. SSR. Biol. nauki 16 no.4:27-32'63. (MIRA 16:6)

1. Otdel biofiziki i bioniki Instituta fiziologii imeni L.A. Orbeli AN ArmSSR.  
(VESTIBULAR APPARATUS)

GARIBYAN, A.A.; GAMBARYAN, L.S.

Interaction of motor and vestibular analyzers in the mechanisms of  
statokinetic coordination. Izv. AN Arm. SSR. Biol. nauki 16 no.11:  
65-71 N '63. (MIRA 17:4)

1. Otdel biofiziki i bioniki instituta fiziologii imeni akademika  
L.A.Orbeli AN Armyanskoy SSR.



GAMBARYAN, L.S.

Contemporary concepts of the structure of the motor analyzer.

Izv. AN Arm. SSR. Biol. nauki 17 no.4:3-10 Ap '64.

(MIRA 17:6)

1. Laboratoriya neyrobioniki Instituta fiziologii imeni  
L.A. Orbeli AN Armyanskoy SSR.

GAMBAR<sup>Y</sup>AN, L.S.; MARKARJAN, L.P.

Role of the cerebellum in the mechanisms of maturation of sexual function and reproductive activity. Cesk. gynek. 28 no.7:429-432 S '63.

1. Fyziologicka laborator Vyzkumneho ustavu porodnictvi a gynekologie ministerstva zdravotnictvi Armenske SSR a Fyziologicka laborator oddeleni radiobiologie AV Armenske SSR - Jerevan.

(CEREBELLUM) (SEX BEHAVIOR) (REPRODUCTION)  
(ESTRUS) (PHYSIOLOGY)

GAMBARYAN, L.S.; MARKARYAN, L.P.

Role of cerebellum in the maturation mechanisms of sexual function  
and of reproductive activity. Fiziol. zhur. 49 no.12:1489-1493  
D '63. (MIRA 17:12)

1. Otdel biofiziki i bioniki Instituta fiziologii im. L.A. Orbeli  
AN Arm. SSR i Fiziologicheskaya laboratoriya Nauchno-issledovatel'-  
skogo instituta akusherstva i ginekologii Ministerstva zdravookhra-  
neniya Armyanskoy SSR, Yerevan.

GAMBARYAN, L.S.; GARIBYAN, A.A.; OGANESYAN, S.S.

Method of sectioning the pyramidal tracts in dogs. Izv. AN Arm.  
SSR. Biol. nauki 17 no.9:23-27 S '64 (MIRA 18:1)

1. Laboratoriya neyrobioniki Instituta fiziologii imeni L.A.  
Orbeli AN Armyanskoy SSR i Neyrokhirurgicheskaya klinika Insti-  
tuta travmatologii i ortopedii imeni Kh.A.Petrosyana Ministerstva  
zdravookhraneniya Armyanskoy SSR.

ALAVERDYAN, M.I.; GAMBARYAN, L.S.; PAPOYAN, S.A.; MCVSESYAN, M.A.;  
GEZALYAN, L.S.

Effect of ionizing radiation and some surgical operations on  
the cellular phagocytic reactivity of the organism. Izv. AN  
Arm. SSR. Biol. nauki 18 no.11:3-10 N '65. (MIRA 19:1)

1. Sektor radiobiologii AMN SSSR i Laboratoriya neyrobioniki  
AN ArmSSR.

L 28024-66 EWT(m)

ACC NR: AP6018168

SOURCE CODE: UR/0298/65/018/011/0003/0010

AUTHOR: Alaverdyan, M. I.; Gambaryan, L. S.; Papoyan, S. A.; Movsesyan, M. A.;  
Gezalyan, L. S.

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B

ORG: Sector of Radiobiology, AMN SSSR (Sektor radiobiologii AMN SSSR); Laboratory of  
Neurobionics, AN ArmSSR (Laboratoriya neyrobioniki AN ArmSSR)

TITLE: Effect of ionizing radiation and interference in the form of operations on  
the cell-phagocytic reactivity of the organism

SOURCE: AN ArmSSR. Izvestiya. Seriya biologicheskikh nauk, v. 18, no. 11, 1965,  
3-10

TOPIC TAGS: ionizing radiation, radiation biologic effect, brain, cerebral cortex,  
autonomic nervous system, blood

ABSTRACT: Phagocytosis was studied in rabbits against the background of  
decortication of the brain, removal of the sympathetic network, x-rays, and  
severe blood loss. A single exposure to x-rays (800 and 260 r) resulted in  
activation of phagocytosis within 24 hours after treatment and in a reduction  
of this reaction during the first, second, and third weeks of radiation  
sickness. The combination of radiation with blood loss resulted in a sharp  
inhibition of phagocytosis, stronger than that of radiation alone. Blood  
loss by itself did not inhibit the phagocytic reactions of the blood. Re-  
moving the abdominal sympathetic network along with radiation caused, as

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L 28024-66

ACC NR: AP6018168

did both of these factors separately, a pronounced suppression of phagocytotic activity of leukocytes of rabbits in the later stages of the post-radiation period but activated phagocytosis in the twenty-four hours following radiation and removal of the sympathetic network. Removal of the cerebral cortex caused an evident reduction in the level of phagocytosis (up to five times). Orig. art. has 1 figure and 3 tables. [JPRS]

SUB CODE: 06 / SUBM DATE: 09Mar65 / ORIG REF: 030 / OTH REF: 021

Card

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90

GAMBARYAN, M.Ye.

Distribution, number, and biomass of bacteria in the Sevan Bay.  
Mikrobiologiya 23 no.4:462-463 J1-Ag '54. (MLRA 7:9)

1. Sevanskaya gidrobiologicheskaya stantsiya AN Arm.SSR.  
(WATER, bacteriology,  
of lakes)  
(BACTERIA,  
in lakes)



GAMBARYAN, M. Ye.

GAMBARYAN, M. Ye. ---"The Bacterial Flora of Lake Sevan." Yerevan, 1955.  
(Dissertation for the Degree of Candidate in Biological Sciences).

So: Knizhnaya letopis', No 8, 1956, pp 97-103

CAM BARYAN, M. E.

Get ✓ Ammonification of organic nitrogenous substances in water and bottom of Sevan Lake. M. E. Cambaryan. Doklady Akad. Nauk Armyan. S.S.R., 23, 135-136 (1967). The Sevan Lake in Armenian S.S.R. carries the highest population of ammonifying bacteria in the spring. In the bottom sediments the highest population is found in silts, lowest in sandy structures. Bacteria which mineralize org. N compds. are most numerous in the latter half of a year. Thus, mineralization of proteins continues the year round.

G. M. Kopylov

USSR/Microbiology - General Microbiology.

F-1

Abs Jour : Ref Zhur - Biol., No 12, 1958, 52744

Author : Gambaryan, M.Ye.

Inst : Sevan Hydrobiological Station.

Title : General Characteristics of Nitrogen Transformation Processes, Quantity and Biomass of Bacteria in Lake Sevan.

Orig Pub : Tr. Sevansk. gidrobiol. st., 1957, 15, 5-45.

Abstract : Nitrogen-fixing and nitrifying bacteria are found irregularly in the waters of Lake Sevan. The greatest number is observed during the autumn-winter season, when the number of nitrifiers and azobacter does not exceed 10 cells, and anaerobic nitrogen fixers, 100 cells per ml of water. Ammonifying bacteria are always found in the lake water; in the spring, during the period of changing of form of diatom algae and in the fall during the period of mass

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USSR/Microbiology - General Microbiology.

F-1

Abs Jour : Ref Zhur - Biol., No 12, 1958, 527<sup>44</sup>

dying of plant and animal life, up to 1000 cells are noted per ml. The number of denitrifying bacteria ranges between 0 and 1000 cells per ml with the maximum occurring during spring and autumn. On the Lake Sevan bottom the processes related to the nitrogen cycle occur with greater intensity than in the water mass. The number of aerobic and anaerobic nitrogen fixers, ammonifying and denitrifying bacteria reaches 10 thousand cells per gm of raw bottom. There are few nitrifying bacteria in bottom soils. The number of bacteria growing on MPA in lake waters ranges from 1 to 495 cells per ml and comprises from 0.001 to 0.130% of the number accounted for by the direct method, while in bottom soils-- from 2.7 up to 8350 cells per g of bottom soil. The total number of microorganisms counted by the direct method ranges from 164 to 816 thousand cells per ml, and the biomass from 0.139 to 0.597 mg/l. The total number of microorganisms on surface layers of different types of

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USSR/Microbiology - General Microbiology. Water And Air  
Microorganisms.

F

Abs Jour : Ref Zhur Biol., No 22, 1958, 99335

Author : Gambaryan, M.Ye.

Inst : AS ArmSSR

Title : The Nitrification Process in the Water and Soils of  
Lake Sevan.

Orig Pub : Dokl. AN ArmSSR, 1957, 25, No 1, 37-41

Abstract : In the water and soils of the Sevan, Nitrosomonas  
europaea Winogr. and Nitrobacter winogradskiy Duchanan  
were uncovered. The quantity of nitrifying bacteria in  
the water of Lake Sevan is not large and amounts to 10  
cells in 1 ml; in bottom deposits it rises to 100 cells  
per 1 g of wet soil. -- V.L. Mekhtiyeva

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GAMBARYAN, M.Ye., RYZHKOV, L.P.

Modified holders for using narrow-and wide-roll film in  
photomicrography. Lab.delo 4 no.3:47-49 My-Je '58 (MIRA 11:5)

1. Iz Sevanskoy gidrobiologicheskoy stantsii AN Armyanskoy SSR.  
(PHOTOMICROGRAPHY)

GAMBARYAN, M.Ye.

Assimilation of molecular nitrogen in the water and bottom  
deposits of Lake Sevan [with summary in English]. Mikrobiologiya  
27 no.3:366-370 My-Je '58 (MIRA 11:9)

1. Sevanskaya gidrobiologicheskaya stantsiya AN ArmSSR:  
(WATER SUPPLY, microbiology  
nitrogen-fixing bact. in lakes (Rus))

GAMBARYAN, M.Ye.

Method for microphotography of microorganisms. Lab.delo 5 no.6:  
43-44 N-D '59. (MIRA 13:3)

1. Iz Sevanskoy gidrobiologicheskoy stantsii.  
(MICROPHOTOGRAPHY) (MICROORGANISMS)



KUZNETSOV, S.I.; GAMBARYAN, M.Ya.

Estimating the photosynthetic production of organic matter in Lake  
Sevan. Izv. AN Arm. SSR. Biol. nauki 13 no. 4:63-69 Ap '60.  
(NIRA 14:2)

1. Sevanskaya gidrobiologicheskaya stantsiya Akademii nauk  
ArmSSR.

(SEVAN, LAKE—PHOTOSYNTHESIS)

PANOSYAN, A.K.; GAMBARYAN, M.Ye.; BABAYAN, G.S.

Micro-organisms transforming phosphorus in Lake Sevan. Izv. AN  
Arm. SSR. Biol. nauki 13 no.10:3-12 '60. (MIRA 13:12)

1. Sektor mikrobiologii i Sevanskaya gidrobiologicheskaya stantsiya  
AN Arm. SSR.

(SEVAN, LAKE—BACTERIA, PHOSPHORUS)

GAMBARYAN, M.Ye.

Physicochemical conditions and microflora of the tributaries of  
Lake Sevan. Izv. AN Arm. SSR. Biol. nauki 14 no.9:65-71 S '61.  
(MIRA 14:9)

1. Sevanskaya gidrobiologicheskaya stantsiya AN Armyanskoy SSR.  
(SEVAN LAKE REGION--WATER--COMPOSITION)

GAMBARYAN, M. Ye.

Role of biological processes in the contemporary oxygen balance  
in Lake Sevan. Izv. AN Arm. SSR. Biol. nauki 16 no. 9:7-16 1963  
(MIRA 1967)

1. Sevanskaya gidrobiologicheskaya stantsiya AN Armyanskoy SSR.

1 6441-65

ACCESSION NR: AP5016831

UR/0298/61/018/005/0009/0013

AUTHOR: Gambaryan, M. Ye.

TITLE: Introduction of Sevan trout into Lake Kari

SOURCE: AN ArmSSR. Izvestiya, Biologicheskoye nauch. v. 18, no. 5, 1965, 9-13

TOPIC TAGS: lake, hydrology, ice, fish industry, primitive plant, food technology

ABSTRACT: The physical, chemical and biological conditions of Lake Kari in Armenia were investigated in 1963-64 to determine the feasibility of introducing trout from nearby Lake Sevan. Lake Kari located on Mt. Aragats at an altitude of 3185 m has an area of 14 hectares with a maximum depth of 8 m. The high altitude and difficult climatic conditions cause freezing of the lake during 8-9 mos of the year and have prevented the development of a fish industry. Lake Kari belongs to the secondary-oligotrophic type of water body on the basis of its primary plankton production, low clearness of water (2.5 m), absence of thermal stratification, poor mineralization with

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1. GUMI-65

ACCESSION NR: AP5016831

almost neutral reaction of water, low oxygen content during the summer, and zoobenthic development. In July 1964, 3000 6 mos old trout were released into Lake Kari. By the following summer the fish increased their weight by 21 times reaching a mean of 14.2 g and general conditions proved favorable for their survival. Thus, the introduction of trout into Lake Kari and other mountain lakes appears feasible, and the next problem is to find means of increasing the food supply to promote trout breeding. Orig. ar. has: 3 tables.

ASSOCIATION: Sevanskaya gidrobiologicheskaya stantsiya AN ArmSSR  
(Sevan Hydrobiological Station, AN Armenian SSR)

SUBMITTED: 27Nov64

ENCL: 00

SUB CODE: ES, LS

NR REP SOV: 004

OTHER: 000

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GALBARYAN, N. P.

Defended his Dissertation for Candidate of Chemical Sciences in the Chemical Institute, Armenian SSR, Yerevan, 1953

Dissertation: "Synthesis of Lepidine and Its Analogs With Substituents in the Aromatic Ring"

SO: Referativnyi Zhurnal Khimii, No. 1, Oct. 1953 ("29955, 26 Apr 54)

GAMBARYAN, N. P.

\* Synthesis of lepidine and its analogs with substituents in the aromatic ring. A. F. Babayan and N. P. Gambaryan. *Sbornik Stat'i Obshchei Khim., Akad. Nauk SSSR*, 1, 606-71 (1953); cf. *C.A.* 47, 3206f. — Some 70-80% yields of lepidine and its homologs are obtained by cyclization of  $\beta$ -( $\alpha$ -aminoaryl)butanones in the presence of HCl, ZnCl<sub>2</sub>, and FeCl<sub>3</sub>. Heating 22.5 g. FeCl<sub>3</sub>, 8.2 g. 4-phenylamino-2-butanone, 1.1 g. ZnCl<sub>2</sub>, 5 ml. 35% HCl, and 60 ml. EtOH 6 hrs. on a steam bath, followed by evapn. and addn. of NaOH gave 81.5% lepidine; *picrate*, m. 211-12°. Similarly 4-( $\alpha$ -tolylamino)-2-butanone gave 79% 4,8-dimethylquinoline (*picrate*, m. 216-18°); 4-( $\beta$ -tolylamino)-2-butanone gave 82% 6-methyllepidine (*picrate*, m. 236-8°); 4-( $\beta$ -anisyl)-2-butanone gave 82.8% 6-methoxylepidine (*picrate*, m. 224-5°). Heating 36.2 g. *N*-( $\gamma$ -chlorocrotyl)aniline, 20 g. KOH, and 50 ml. iso-AmOH 4 hrs. at reflux gave 67.6% 1-phenylamino-2-butyne, b. 112-13°, *d*<sub>4</sub> 1.0167, *n*<sub>D</sub> 1.5739; this (14.5 g.), 6.3 g. PhNO<sub>2</sub>, 7 ml. H<sub>2</sub>SO<sub>4</sub>, 1 g. HgO, and 30 ml. MeOH refluxed 8 hrs. gave 46.1% lepidine, probably formed through intermediate formation of 4-phenylamino-2-butanone. Heating 103.4 g. (MeCCl:CHCl<sub>2</sub>), NMe<sub>2</sub>Cl and 114.4 g. 1-C<sub>10</sub>H<sub>7</sub>NH<sub>2</sub> 7 hrs. at 130-140° gave 88% dimethylchlorobutenylamine and 90% *N*-( $\gamma$ -chlorocrotyl)-1-naphthylamine (I), b. 199-201°, *d*<sub>4</sub> 1.1591, *n*<sub>D</sub> 1.6438. Similar reaction with 2-C<sub>10</sub>H<sub>7</sub>NH<sub>2</sub> gave 90% *N*-( $\gamma$ -chlorocrotyl)-2-naphthylamine (II), b. 200-2°, *d*<sub>4</sub> 1.1485, *n*<sub>D</sub> 1.6512. I (39.3 g.) treated with cooling with 40 ml. concd. H<sub>2</sub>SO<sub>4</sub>, evolved HCl; after standing for a considerable time (unstated) the mixt. was neutralized and extd. with Et<sub>2</sub>O, yielding 21.7% 7,8-benzolepidine, isolated as *picrate*, m. 210-17°. Similarly II gave 41.4% 5,6-benzolepidine *picrate*, m. 224-5°; free base, m. 100-1°. Free 7,8-isomer, m. 77-8° (cf. Vavrecka, *C.A.* 44, 3905b). G. M. Kosolapoff



GAMBAR 7.8. 124 P.

# USSR.

Synthesis of 4,7-dimethylquinoline. A. T. Babayan and Nina P. Gamtsryan. *Izvest. Akad. Nauk Armyan. S.S.R., Ser. Khim. Nauk* 1953, No. 2, 73-8; *Referat. Zhur. Khim.* 1954, No. 12718. Hydrolysis of *N*-( $\gamma$ -chlorocrotyl)-*m*-toluidine (I) in the presence of  $H_2SO_4$  yields 4,7-dimethylquinoline (II). It is assumed that the reaction proceeds through an intermediate stage at which 4-(*m*-tolylamino)-2-pyranone (III) is formed, but does not sep., since, in carrying out the reaction under conditions which prevent the formation of III, II cannot be obtained. On cyclization there apparently also forms 4,7-dimethyl-1,2,3,4-tetrahydroquinoline; its presence is proved by the fact that oxidation of the mixt. obtained during cyclization doubles the yield of II. Dehydrochlorination of I forms *N*-( $\beta$ -butynyl)-*m*-toluidine (IV) which upon hydration forms II. A mixt. of 77.6 g. dimethylbis( $\gamma$ -chlorocrotyl)ammonium chloride (V) and 64.2 g. *m*-toluidine (VI) is heated for 10 hrs. 130-40°, a soln. of 25 g. of KOH added, and the org. layer distd. giving I,  $b_p$  123-8.5°,  $n_D^{20}$  1.5602,  $d_4^{20}$  1.3807; yield based on V 72%.

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and based on VI, 88%. To 40.0 g. of VI and 41.0 g. of 1,3-dichloro-2-butene is added 25 g. of KOH and the upper layer is distd., yielding 60% I. To 12.1 g. of I is added with cooling 40 ml. H<sub>2</sub>SO<sub>4</sub>, the mixt. is stirred 13 days, neutralized with Na<sub>2</sub>CO<sub>3</sub>, extd. with ether, and the ether evapd., giving 11 g. substance (VII) from which was sepd. II (picrate, m. 237° (from Me<sub>2</sub>CO)), yield 16.9%; styphnate, m. 287° (from nitrobenzene). Crude material (0.93 g.) obtained in hydrolysis of VII was heated on a water bath with 0.15 g. ZnCl<sub>2</sub>, 1.25 g. FeCl<sub>3</sub>, 0.5 g. concd. HCl, and 11 ml. alc. The mixt. is alkylized and steam distd., giving II. Treating I in the same way yields only 1% II. I (13.3 g.), 11 g. KOH, and 15 ml. abs. alc. were heated 10 hrs. on a water bath, after which it was dil'd. with H<sub>2</sub>O, extd. with ether, and distd. to obtain 67% IV, b.p. 124°, n<sub>D</sub><sup>20</sup> 1.5520, d<sub>4</sub><sup>20</sup> 1.0925. A mixt. of 1.4 g. IV, 0.54 g. PhNO<sub>2</sub>, 0.04 ml. H<sub>2</sub>SO<sub>4</sub>, 0.2 g. HgO, and 8 ml. MeOH, heated 14 hrs. on a steam bath, the alc. driven off, and the residue extd. with ether, yields 44.8% II picrate.

M. Hough

GAMBARYAN, N. P.

# CZECH

Transformations of semicarbazones of  $\beta$ -substituted ketones. I. Semicarbazones of  $\beta$ -arylaminoobutanones. A. G. Babayan and N. P. Gambaryan. *Sbornik Statek Odkrytí Khim.* 2, 1982, 241-244, 247; 3200f. — Heating 44 g.  $\text{PhNHCH}_2\text{CH}_2\text{CMe:NNHCONH}_2$  with 30 g. AcOH and 200 ml.  $\text{H}_2\text{O}$  2 hrs. on a steam bath gave 10 g.  $\text{PhNH}_2$  and 7.3 g. (28.7%) 3-methylpyrazoline-1-carboxamide, m. 187-8°; *HCl salt*, m. 133-5°. If the semicarbazone is heated with concd. *HCl* on a steam bath 20 min. the latter amide is obtained in low yield. Heating  $\text{PhNHCH}_2\text{CH}_2\text{CMe:COMe}$  with concd. *HCl* 25 min. on a steam bath gave 84%  $\text{PhNH}_2$  and about 0.4 g. lepidine (picrate, m. 210-11°). The yield of lepidine in a similar hydrolysis of the ketone semicarbazone is very low (2-3%). G. M. 12...

6-7-66 B. H. G. / 4.1, 4.2.

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The mechanism of cyclization of  $\beta$ -arylamino butanones. A. T. Babayan and N. P. Gambaryan. *Izvest. Akad. Nauk Armyan S.S.R., Ser. Khim. i Mekh. 1965, No. 5/6, 99-100* (1953) (in Russian; Armenian summary); cf. *C.A.* 47, 3266f. Using 1-anilinobutan-3-one (I) as an example, it was shown that the main part of the  $\beta$ -arylamino butanones (II) decomps. upon heating with HCl, FeCl<sub>3</sub>, and ZnCl<sub>2</sub> to the aromatic amine and methyl vinyl ketone before cyclization occurs. This shows that the cyclization of I resulting in the formation of lepidine is similar to the Skraup and Dobner-Miller reaction. It was established that the quinoline bases can be prepd. by the reaction of an aromatic amine with compds. which can split out methyl vinyl ketone, e.g., I and its *N*-Me and *N*-Ac derivs. 5,6-Benzolepidine was prepd. in 91.4% yield by the reaction of  $\beta$ -naphthylamine with I.

① AA CFW

J. Rovtar Leach

Химический институт  
Академии наук Армянской ССР  
Представлено А. А. Акopyаном.

Peralkylation reaction. I. A. T. Hahanyan, N. P. Gaubaryan, and Nina Gaubaryan. Doklady Akad. Nauk Armyn. S.S.R. 11, No. 10, 1038 (1968); Ref. Zh. Khim. 1968, No. 49058. Treating tertiary amines with  $\text{Me}(\text{MeCIC:CHCH}_2\text{NCl})$  (I) causes a peralkylation reaction. I and  $\text{Me}_2\text{NCH}_2\text{CH}_2\text{CHMe}$  (II) give a mixt. of  $\text{MeC:CCH}_2(\text{MeCIC:CHCH}_2\text{NMe})$  and  $(\text{MeCIC:CHCH}_2)_2\text{NMe}$  (III); I and  $\text{Me}_2\text{NCH}_2\text{CH}_2\text{CClMe}$  (IV) give III. I and  $\text{PhNMe}_2$  give  $\text{MePhNCH}_2\text{CH}_2\text{CClMe}$  (V) and  $\text{Me}_2\text{N}$ . The hydroxide corresponding to I can be used instead of I. IV.HCl undergoes peralkylation less readily than free amines. When I is used the peralkylation reaction proceeds directly to form the end products without forming the intermediate  $\text{CICH}_2\text{CCl:CHMe}$ . II (0.2 mole) and 0.2 mole I were heated 8 hrs. at  $150^\circ$ , then 4 hrs. at  $170^\circ$ , and the mixt. dild. with  $\text{H}_2\text{O}$ , extd. with  $\text{Et}_2\text{O}$  and distd., giving 7.2 g. III, b.p.  $120-30^\circ$  (plate, m.  $114-15^\circ$ ); from the aq. layer were isolated on alk. decompn.  $\text{Me}_2\text{N}$ , 3.7 g. II, 1.7 g. IV, and some III. IV (0.2 mole) and 0.2 mole I 14 hrs. at  $150-60^\circ$  gave IV and 32.9 g. III (HCl salt, m.  $142^\circ$ ); from the aq. layer were isolated  $\text{Me}_2\text{N}$  and III. On heating 0.1 mole IV and 0.1 mole I 10 hrs. at  $150-5^\circ$  gave 12% III; IV and the hydroxide analog of I gave 47% III.  $\text{PhNMe}_2$  (0.2 mole) and 0.2 mole I 15 hrs. at  $155-60^\circ$  gave 62% V; from the aq. layer were isolated 3.7 g. IV and 0.6 g. III. Heating 0.1 mole I 12 hrs. at  $170-5^\circ$  and 8 hrs. at  $175-85^\circ$  (control expt.) gave 3.3 g. chloroprene polymer; from the aq. layer were isolated 5.1 g. IV and 4.8 g. III. I (0.1 mole) and 0.1 mole III.HCl 12 hrs. at  $175^\circ$  gave 11 g. IV and III.

E. Wierzbicki

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GAMBARYAN, N. P.

AID P - 1272

Subject : USSR/Chemistry

Card 1/1 Pub. 119 - 1/5

Authors : Knunyants, I. L. and Gambaryan, N. P. (Moscow)

Title : Reaction of hydromerization

Periodical : Usp. khim., 23, no. 7, 781-820, 1954

Abstract : A review of the hydromerization of unsaturated hydrocarbons, aldehydes and ketones, as well as of unsaturated acids is given. It is based principally on non-Russian sources. Four tables, 133 references (7 Russian: 1933-1953).

Institution : None

Submitted : No date

GAMBARYAN, NINA

USSR/Chemistry - Alkylation processes

Card 1/1 Pub. 151 - 36/37

Authors : Babayan, A. T.; Gambaryan, Nina.; and Gambaryan, N. P.

Title : Alkylation in aqueous media in presence of quaternary ammonium salts

Periodical : Zhur. ob. khim. 24/10, 1887-1892, Oct 1954

Abstract : The possibility of alkylation of compounds containing a mobile hydrogen atom, in an aqueous medium, in the presence of catalytic quantities of quaternary ammonium salts was discussed. Alkylation takes place as result of an alkyl halide addition to the medium. The alkyls, existing in the quaternary ammonium salt, will not participate in the process of alkylation. The alkylation reaction in aqueous media with alkyl halides was found to be entirely different from the alkylation reaction with ammonium salts carried out in an anhydrous medium at a high temperature. Thirteen references: 9-USSR; 2-German; 1-USA and 1-French (1914-1953).

Institution : Academy of Sciences Arm-SSR, Chemical Institute

Submitted : April 19, 1954

LAMBARYAN, N. P.

S. R.

**Mechanism of cyclization of N-butyrylamine under hydration conditions.** A. T. LAMBARYAN and N. P. LAMBARYAN. *Doklady Akad. Nauk SSSR*, 19, 21, 1964, 1048. (Cyclization of N-butyrylamine under hydration conditions proceeds through the stage of formation of an intermediate carbonyl compound, as indicated by the following results. Heating 38.3 g. PhNHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H with 25 g. Ac<sub>2</sub>O 5 hrs. on a steam bath gave 70% PhNHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H. b.p. 130-141°, d<sub>4</sub> 1.0633, n<sub>D</sub> 1.542. This (18.7 g.), 1 g. H<sub>2</sub>O, 7 ml. concd. H<sub>2</sub>SO<sub>4</sub> and 30 ml. MeOH heated 8 hrs. on a steam bath yielded 59% AcNHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H and a polymer (0.03 g.) was added slowly to 1.5 ml. concd. H<sub>2</sub>SO<sub>4</sub> and kept 6 days there was obtained on treatment of the solution with semicarbazide 38.5% PhNHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H semicarbazone, m. 171-173°. The free ketone (10.25 g.) heated 7 hrs. on a steam bath with 3.2 g. PhNO<sub>2</sub>, 0.7 g. H<sub>2</sub>O, 3.5 ml. H<sub>2</sub>SO<sub>4</sub> and 30 ml. MeOH gave 0.8 g. unreacted ketone and 63.2% AcNHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H. Heating 47 g. N(3-chlorophenyl)-1-naphthylamine, 31 g. KOH, 90 ml. EtOH and 15 ml. polyethylene oxide glycol 17 hrs. on a steam bath gave 84% 1-N(3-chlorophenyl)-N-ethyl-2-naphthylamine, b.p. 173-4°, m. 64.5-6° (from EtOH-hexane). To 11.6 ml. concd. H<sub>2</sub>SO<sub>4</sub> was added with cooling 7.3 g. PhNHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H; after 6 days the mixt. yielded 52.5% PhNHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H; m. 30-31°. Semicarbazone, m. 190-7°. The ketone (1.88 g.), 0.63 g. PhNO<sub>2</sub>, 0.7 ml. H<sub>2</sub>SO<sub>4</sub>, 0.15 g. H<sub>2</sub>O and 6 ml. MeOH after 7 hrs. on a steam bath gave 24.2% 1-N(3-chlorophenyl)-N-ethyl-2-naphthylamine, m. 224-5°. Similarly, 1-MeC<sub>6</sub>H<sub>4</sub>NHCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H, PhNO<sub>2</sub>, H<sub>2</sub>O, H<sub>2</sub>SO<sub>4</sub> and MeOH gave in 8 hrs. 30% 1-N(3-chlorophenyl)-N-ethyl-2-naphthylamine, m. 216-17°. The base is purified by passage over Al<sub>2</sub>O<sub>3</sub>, followed by solution with Et<sub>2</sub>O. The pure base m. 70.5-75°.

C. M. Koelschhoff



*Gambaryan, N.P.*

*Chem* New method of preparation of  $\beta$ -lactams I. L. Konyants and N. P. Gambaryan (Inst. High Pressure Chem., Acad. Sci. U.S.S.R., Moscow) Izvst. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1955, 1037-42. —  $\beta$ -Lactams are prepd. from amides of  $\beta$ -halo carboxylic acids; the method permits the prepn. of mixed halolactams. Refining 20 g.  $\text{PhCHBrCH}_2\text{CO}_2\text{H}$  2 hrs. with 30 ml.  $\text{SOCl}_2$  gave 86%  $\text{PhCHBrCH}_2\text{COCl}$ , b.p. 130-1°;  $\text{PCl}_5$  gave  $\text{PhCHBrCH}_2\text{COCl}$ . Treatment of the acyl halides with 2 moles of amine in  $\text{Et}_2\text{O}$  with cooling gave amides,  $\text{PhCHBrCH}_2\text{CONHR}$  (R, X, yield, m.p. given, resp.):  $\text{Ph}$ , Cl, 90%, 135-5.5°;  $\text{Ph}$ , Br, 85%, 125.5-8°;  $\text{C}_6\text{H}_5$ , Cl, 79%, 110-17°;  $\text{PhCH}_2$ , Cl, 70%, 116-10.5°;  $\text{PhCH}_2$ , Br, 75%, 117-18°;  $\text{EtO}_2\text{CCH}_2$ , Cl, 73%, 53-5°;  $\text{EtO}_2\text{CCH}_2$ , Br, 69%, 82-3°;  $\text{Me}_2\text{C}:\text{C}(\text{CO}_2\text{Et})$ , Cl, 83%, 115-16°;  $\text{Me}_2\text{C}:\text{C}(\text{CO}_2\text{Et})$ , Br, 70%, 125.5-6°;  $\text{Me}_2\text{CHCH}(\text{CO}_2\text{Et})$ , Br, 87%, 80-1°;  $\text{PhCH}:\text{CHCONHR}$  (R, m.p. given):  $\text{C}_6\text{H}_5$ , 122-3°;  $\text{PhCH}_2$ , 103-1°;  $\text{H}_2\text{NCOCH}_2$ , 171-2°;  $\text{Me}_2\text{CHCH}(\text{CO}_2\text{Et})$ , 116-17°;  $\text{Me}_2\text{C}:\text{C}(\text{CO}_2\text{Et})$ , 164.5-5°;  $\text{Me}_2\text{C}:\text{C}(\text{CO}_2\text{Me})$ , 144-5°. The amides were added to an equimolar amt. of  $\text{KNH}_2$  or  $\text{NaNH}_2$  in liquid  $\text{NH}_3$ , shaken, the mixt. left overnight, and after evapn. of  $\text{NH}_3$  the residue treated with  $\text{H}_2\text{O}$ . Thus were prepd.  $\text{PhCH}_2\text{CH}_2\text{CONR}$  (R, m.p. given, resp.):  $\text{C}_6\text{H}_5$ , 52-3°;  $\text{H}_2\text{NCOCH}_2$ , 144-5°;  $\text{PhCHCH}(\text{CO}_2\text{Et})$ , — (b, 167-70°);  $\text{Me}_2\text{C}:\text{C}(\text{CO}_2\text{Et})$ , 51-2°. The yields of lactams were 75-85% in liquid  $\text{NH}_3$  with  $\text{NaNH}_2$  or  $\text{KNH}_2$ ; a soln. of K in  $\text{NH}_3$  gave lower yield; liquid  $\text{NH}_3$  gave  $\text{PhCH}:\text{CHCONHR}$  in 60-74% yields and pyrolysis of the amides. Cyclohexylamides tend to give appreciable amts. of unsatd. amides besides lactams;  $\text{KOH}$  tends to yield mainly unsatd. amides rather than lactams.

*Krueger, J. L.*

Refluxing  $\text{PhCH}_2\text{CH}_2\text{CO}_2\text{NPr}$  1 hr. with alc. KOH gave 83%  $\text{PhCH}(\text{NHPh})\text{CH}_2\text{CO}_2\text{H}$ , m. 134-5°; then were prepared from the corresponding lactams 60%  $\text{PhCH}(\text{NHCH}_2\text{Ph})\text{CH}_2\text{CO}_2\text{H}$ , m. 134-5°, and 70%  $\text{PhCH}(\text{NHCH}_2\text{CH}_2\text{Ph})\text{CH}_2\text{CO}_2\text{H}$ , m. 187-9°. Hydrolysis of  $\text{PhCH}_2\text{CH}_2\text{CO}_2\text{NCH}_2\text{CH}_2\text{CONH}_2$

4 hrs. with 2N HCl at 60° gave 60%  $\text{PhCH}(\text{NHCH}_2\text{CH}_2\text{CO}_2\text{H})\text{CH}_2\text{CO}_2\text{H}$ , m. 205-6°; 20% HCl with 50%  $\text{PhCH}(\text{CO}_2\text{Et})\text{NCOCH}_2\text{CH}_2\text{CHPh}$  gave 60%  $\text{HO-PrNHCHPhCH}_2\text{CH}_2\text{CO}_2\text{H}$ , m. 183-5°, while 20% HCl at 60-6° converted  $\text{PhCH}(\text{CH}_2\text{CO}_2\text{NC}(\text{CO}_2\text{Et})\text{CMe}_2$  into 80%  $\text{PhCH}(\text{NHCH}_2\text{CH}_2\text{CO}_2\text{H})\text{CH}_2\text{CO}_2\text{H}$  isolated as HCl salt, m. 215-17°. G. M. Kosolapoff

2/2

*PhCH*

*# Gambaryan, N.P.*

USSR/Organic Chemistry, Synthetic Organic Chemistry.

E-2

Abs Jour: Ref Zhur-Khimiya No 6, 1957, 19069

Author : Kil'disheva O.V., Gambaryan N.P., Polonskaya M.M.,  
Kunuyantz I.L.

Inst :

Title : Problem of Decarboxylation of -acylamino - -haloido-  
substituted Carbonic Acids.

Orig Pub: Izv. AN SSSR, Otd. Khim. N., 1956, No 7, 850-854.

Abstract:  $\alpha, \beta$ -Dichloro- $\alpha$ -benzoylaminoisovaleric acid (I) and  
 $\alpha$ -oxy- $\beta$ -chloro- $\alpha$ -benzoylaminoisovaleric acid (II) by  
heating with  $(CH_3CO)_2O$  or at the action of ketene  
(III) form 2-phenyl-4-acetoxy-4-(2-chloroisopropyl)-  
oxazolone (IV). It is shown that II at the action  
of a solution  $NaHCO_3$  is easily transformed into iso-  
butyrylbenzimid (V), apparently, through the formation  
stage of  $\beta$ -lactone. Eleven g. of  $\alpha$ -benzoylamino  $\alpha, \beta$ -

Card : 1/3

USSR/Organic Chemistry, Synthetic Organic Chemistry.

E-2

Abs Jour: Ref Zhur-Khimiya No 6, 1957, 19069

dimethylacrylic acid, are treated with a solution of  
7.1 g.  $Cl_2$  in 71 cc  $CCl_4$  I is obtained, yield 93%,  
melting point  $104^\circ$  (decomp.). 7.5 g. I are treated  
with 30 cc of water, after 2 hours the precipitate  
is filtered off, yield II 73%, m. p.  $70-75^\circ$  (dec.)  
A mixture of 5.8 g. I, 50 cc  $(CH_3CO)_2O$ , and 25cc  $CCl_4$   
is heated in a vacuum at  $70-80^\circ$ ; IV is obtained, yield  
65%, m.p.  $95^\circ$  (from absolute sp). Analogically, at  
the treatment of 2.4 g. II with 25cc  $(CH_3CO)_2O$  in  
 $CCl_4$ , IV is obtained, yield 40%. At the action of III  
on I in  $C_6H_6$  the yield of IV is 29%. From the filtrate  
after treatment with bicarbonate II, m.p.  $155^\circ$  precipi-  
tates. 0.01 mole I heated for 2 hours with 0.01 mole  
 $PCl_5$  in 20 cc abs.  $C_6H_6$  is produced 2-phenyl-4-(2-chloro-  
isopropyl)-oxazolone (VI), yield 72%, m.p.  $60-64^\circ$  (decomp.,  
from petr. ether). 0.01 mole I is treated with a solution

Card : 2/3

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Gambaryan, N.P.

USSR/Organic Chemistry - Theoretical and General Questions  
on Organic Chemistry

E-1

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4210

Author : Knunyants, I.L., Dyatkin, B.L., Gambaryan, N.P.  
Title : On Ready and Widespread Formation of Four-Membered Ring

Orig Pub : Uspekhi khimii, 1956, 25, No 7, 785-844

Abstract : A synopsis of numerous literature data concerning the preparation and the stability of four-membered cyclic compounds. It is shown that ready formation and stability of four-membered rings are substantially affected by the presence of substituents and their nature. In a number of cases formation of four-membered rings takes place in preference to that of the five- and six-membered cyclic systems.  
Bibliography 414 references.

Card 1/1

- 1 -

GAMBARYAN, N.P.

✓ Decarboxylation of  $\alpha$ -acylamino- $\beta$ -halo-substituted ac-  
borylenes? O. V. Kozlov, N. P. Gambaryan, E. M. Polonskye, and L. L. Gambaryan. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1980, 871-4 (English transla-  
tion).—See *CA*, 91, 2797i. B. M.

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GAMOV, G.; RICH, A.; IKAS, M.; GAMBARYAN, N.P. [translator]

Transfer of information from nucleic acids to proteins. Khim.nauka  
i prom. 2 no.4:499-508 '57. (MIRA 10:11)  
(Nucleic acids) (Proteins) (Mathematical statistics)

GAM BARYAN, N.P.

instr: 4E43/4E20(3)

Isomeric transformation of lactams of 8-aminic acids into dihydrocarboxyls. I. L. Kabanov and N. P. Gambaryan (Inst. Heterocycl. Compds., Moscow). Izv. Akad. Nauk S.S.S.R., Otd. Khim. Nauk 1957, 834-9. 4-Phenylazetidin-2-ones react with  $H_2SO_4$  by isomerizing into 4-phenyl-3,4-dihydrocarboxyls. To 0.82 g.  $NaOH$  in liquid  $NH_3$  was added 7.7 g.  $PhCHBrCHBrCONHPh$ ; after 1 day there was obtained 90% 1,4-diphenyl-3-bromoazetidin-2-one (I), m. 203-4°, which boiled 20 hrs. with  $Zn-EtOH$  gave 1,4-diphenylazetidin-2-one, m. 153-4°. The 3-Br deriv. formed in 78% yield when  $NaNH_2$ -liquid  $NH_3$  was used for the ring closure;  $KNH_2$  gave 88.5% yield. A 38% yield resulted from liquid  $NH_3$  alone.  $MeCHBrCHBrCONHPh$  with  $NaNH_2$  in liq.  $NH_3$  in 1 day gave 58.4% crotonanilide and 26.4% 1-phenyl-4-methylazetidin-2-one, b.p. 138-40°. Similarly,  $KNH_2$  and  $Me_2CBrCH_2CONHPh$  gave 27.5% 1-phenyl-4,4-dimethylazetidin-2-one, m. 43-5°. Addn. of 0.4 g.  $PhCHBrCHBrCONHPh$  to 0.1 g.  $KOH$  in abs.  $EtOH$  gave after 20 min. standing and diln. with  $H_2O$  83%  $PhCH_2CH_2CONHPh$ , m. 161-3° (this boiled 18 hrs. with  $Zn$  dust- $EtOH$  gave cinnamanilide), and 12%  $PhCH_2CH_2CONHPh$ , m. 77-8°. Keeping 1 g. 1,4-diphenylazetidin-2-one in concd.  $H_2SO_4$  overnight gave on diln. 40% 4-phenyldihydrocarboxyl (II), m. 177-8° (with  $CrO_3$  this gave 4-phenylcarboxyl, m. 285°). Similarly, 1,4-diphenyl-3-bromoazetidin-2-one gave 72.5% 3-bromo-4-phenyldihydrocarboxyl, m. 164-5°, reducible with  $Zn-EtOH$  to I; heating the Br deriv. in 0.5N a/c.  $KOH$  gave 91% 4-phenylcarboxyl. Keeping cinnamanilide overnight in  $H_2SO_4$  gave 40% 4-phenyldihydrocarboxyl. Similar

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KNUNYANTS, I. L.; GAMBAYAN, N. P.

reaction of  $\text{PhCHClCH}_2\text{CONHPh}$  in 20 min. gave cinnam-  
anilide, but a 24 hr. reaction gave 4-phenyldihydrocar-  
boxystyrene. Similar reaction of 1-cyclohexyl-4-phenylazetidin-  
2-one overnight gave 98% cyclohexyl amide of cinnamic acid,  
m.  $173-4^\circ$ , obtained in 58% yield in 1 hr. after similar reac-  
tion of  $\text{PhCHClCH}_2\text{CONHC}_6\text{H}_{11}$ . The same treatment of 1-  
phenyl-4,4-dimethylazetidin-2-one overnight gave 89%  
 $\text{Me}_2\text{C}:\text{CHCONHPh}$ , m.  $125-8^\circ$ , formed also in 87% yield by  
treatment with  $\text{MeOH-NaOH}$  of  $\text{Me}_2\text{CBrCH}_2\text{CONHPh}$ .  
1-Phenyl-4-methylazetidin-2-one kept overnight in  $\text{H}_2\text{SO}_4$   
gave crotonanilide, formed also in 68% yield from  $\text{MeCH}:\text{BrCH}_2\text{CONHPh}$  and  $\text{MeOH-NaOH}$  in 15 min. 1-Benzyl-4-  
phenylazetidin-2-one in  $\text{H}_2\text{SO}_4$  overnight gave  $\text{PhCH}:\text{CH}:\text{CONHC}_6\text{H}_5$ , m.  $103-4^\circ$ .

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G. M. K.



AUTHORS: Knunyants, I. L., Gambaryan, N. P. SOV/62-58-10-10/25

TITLE: Determining the Strength of the Bonds of Radicals With Sulfur in Unsymmetrical Sulfides by Means of a Destructive Bromination Method (Opredeleniye prochnosti svyazi radikalov s seroy v nesimmetrichnykh sul'fidakh metodom destruktivnogo bromirovaniya)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 10, pp 1219-1227 (USSR)

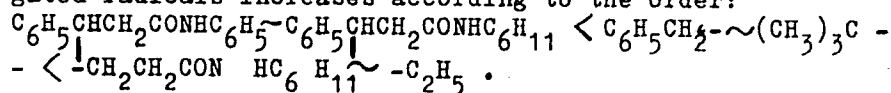
ABSTRACT: The reaction of the carbonyl compounds with mercaptans in the presence of anhydrous hydrogen chloride (Refs 2-5) is widely used in the synthesis of  $\alpha$ -chlorosulfides. The reaction with other compounds can not be used for the synthesis. Sulfides that have hydrogen in the  $\beta$ -position to the althio group form, however, in the chlorination a mixture of products of the further chlorination of vinyl ethers; the latter form intermediately and are difficult to separate. The bromination of the sulfides has remained almost uninvestigated. Only in 1956 it was shown that in the treatment of dimethyl sulfide by bromine a very stable bromosulfonium salt is formed which in the course of long boiling in carbon tetrachloride decomposes

Card 1/2

Determining the Strength of the Bonds of Radicals  
With Sulfur in Unsymmetrical Sulfides by Means of a  
Destructive Bromination Method

SOV/62-58-10-10/25

into two directions (Ref 16). The authors of the present paper showed that the bromination of  $\beta$ -alkthio carboxylic acid derivatives leads to the cleavage of the C-S bond, with a bromine derivative and disulfide being formed. The reaction of the destructive bromination can be taken as characteristic feature of the strength of the bond of radicals with sulfur in unsymmetrical sulfides. The binding strength of the investigated radicals increases according to the order:



There are 4 tables and 20 references, 2 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR  
(Institute of Elementary Organic Compounds, Academy of  
Sciences, USSR)

SUBMITTED: March 4, 1957  
Card 2/2

5(3)

AUTHORS:

Knunyants, I. L., Gambaryan, N. P., SOV/74-27-12-1/4  
Rokhlin, Ye. M. (Moscow)

TITLE:

Carbenes (Karbeny) Compounds of Bivalent Carbon Occurring  
in Intermediary Form in Organic Reactions (Soyedineniya  
dvukhvalentnogo ugleroda, promezhutochno obrazuyushchiesya  
v organicheskikh reaktsiyakh)

PERIODICAL:

Uspekhi khimii, 1958, Vol 27, Nr 12, pp 1361 - 1436 (USSR)

ABSTRACT:

In this survey the authors made an attempt to deal thoroughly with the data known from publications on the intermediary formation of carbenes. In future the intermediary formation of carbenes may be expected to be demonstrated in the case of reactions of organic substances as well. The survey is concluded with the discussion of the carbene structure. At the moment it is not yet possible to say anything definite about the electron state of the carbenes - whether in singlet or triplet state. In the former case they can really be regarded as bases conjugate with carbon ions, in the latter case as radicals. The data in the publications are extremely contradictory. It frequently occurs that the individual authors draw different conclusions from one and the same

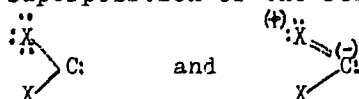
Card 1/4

Carbenes. Compounds of Bivalent Carbon Occurring  
as Intermediary Form in Organic Reactions

SOV/74-27-12-1/4

condition. Approximative quantum-mechanical computations lead, however, to the conclusion that the basic state of the most simple carbene - methylene - is a triplet state. The interest for carbenes was roused in connection with the work carried out with carbene dihalides. It was proved that in the case of an effect of bases on "haloforms" a separation of the proton takes place. The trihalogen methyl anion formed in this connection is decomposed into carbene dihalide and halogen anion. As a result of its electrophilic nature carbene dihalide enters a reaction with a number of nucleophilic reagents. In consequence of the reaction of carbene dihalides with olefins propane dihalides are formed. This new reaction has found a wide field of application and makes various cyclohexane derivatives accessible; among them also compounds with a condensed system containing a cyclopropane cycle. It is possible to explain the relative stability of carbenes by means of the superposition of the following structures:

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Carbenes. Compounds of Bivalent Carbon Occurring  
as Intermediary Form in Organic Reactions

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The energy yield is, however, too small to guarantee a complete stability of carbene dihalides as is the case with carbon oxide or isonitrilene. In the case of free methylene there is no such possibility; a shorter period of time, is, however, permissible. Free methylene is formed as a result of a thermal or photolytic separation of diazomethane or ketene. Data concerning the intermediary formation of methylene exist also with other reactions. In order to be able to obtain a carbene from a compound with a tetravalent carbon from the molecule of that compound, such an atom group must be separated which is connected with the carbon atom by means of two electron pairs. Such a reaction may be called an  $\alpha$ -separation in the widest sense of the word. Thus it is possible to obtain not only carbenes with only one carbon atom but also substituted and complicated carbenes. Oxycarbenes have been most thoroughly investigated. The relative stability of oxycarbenes may be explained by an unseparated pair of electrons in the "carbene"-carbon atom with the carbonyl double binding. The carbene formation happens to be most unreliable in the synthesis of dimerolefins from halogen

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Carbenes. Compounds of Bivalent Carbon Occurring  
as Intermediary Form in Organic Reactions

SOV/74-27-12-1/4

derivatives. The possibility of an  $\alpha$ -separation of hydrogen halide is proved by the investigation of hydrogen halide separation of deuterio halides of the type  $\text{RCD}_2\text{CH}_2\text{X}$  and  $\text{RCH}_2\text{CD}_2\text{X}$ , even if the hydrogen atom is in a  $\beta$ -position. The  $\alpha$ -separation of hydrogen halide is often accompanied by a process of regrouping which is in connection with the transformation of both hydrogen or deuterium and various groups connected with the  $\beta$ -hydrocarbon atom. Finally it may, however, be said that neither the geometric nor the electron structure of carbenes seems to be definitely investigated. There are 545 references, 72 of which are Soviet.

Card 4/4

5(4)

AUTHORS:

Bochvar, D. A., ~~Gambaryan, N. P.~~  
Stankevich, I. V., Chistyakov, A. L.

SOV/76-32-12-22/32

TITLE:

A Qualitative Evaluation of the Stability of Heterocyclic Systems by Hueckel's Method of Approximation (O kachestvennoy otsenke ustoychivosti geterotsiklicheskikh sistem v ramkakh priblizheniya Gyukkelya)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 12,  
pp 2797 - 2802 (USSR)

ABSTRACT:

E. Hueckel (Ref 1) used the words "closed electron shell" to explain the relative stability of cyclic ions. With molecules forming regular polygons of CH-groups, the first, not degenerate level is followed by several doubly degenerate levels. If these levels are gradually filled in with  $\pi$ -electrons, closed electron shells are formed for systems with 2, 6, 10, 14 ....  $\pi$ -electrons in accordance with Pauli's principle. When a CH-group is replaced by an atom other than a C-atom or when a substitution takes place, the energy change may be considered as being a disturbance which does not exert any influence on the closed shell. A study is made of the general stability of

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A Qualitative Evaluation of the Stability of  
Heterocyclic Systems by Hueckel's Method of Approximation

SOV/76-32-12-22/32

the hepta-ring where a CH-group is replaced by a less electronegative group, in this special case by boron ("Borepin"). The secular determinant of the molecule is developed as a polynomial, the number of its positive and negative roots determined and the conjugation energy of the system calculated. This method can easily be applied to heterocyclic systems, if the numerical values of the parameters used in the secular equation are unknown. In some cases, however, a clear determination of the molecular tracks is impossible without definite parameter values. Calculations show that "Borepin" has a closed electron shell. There are 3 tables and 2 references, 1 of which is Soviet.

ASSOCIATION: Akademiya nauk SSSR (Academy of Sciences, USSR)  
Institut elementoorganicheskikh soyedineniy, Moskva  
(Institute of Element-Organic Compounds, Moscow)

SUBMITTED: June 10, 1957

Card 2/2



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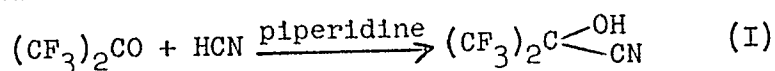
SOV/63-4-6-26/37

AUTHORS: Knunyants, I. L., Rokhlin, E. M., Gambaryan, N. P.,  
Cheburkov, Yu. A., Ch'ên ch'ing-yün

TITLE: Brief Communications. Fluorinated Ketones. Bis-  
(trifluoromethyl)-glycolic Acid

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4,  
Nr 6, pp 802-804 (USSR)

ABSTRACT: Nitrile of bis-(trifluoromethyl)-glycolic acid (I)  
was synthesized by the reaction of hexachloroacetone  
with HCN in the presence of a catalytic amount of  
piperidine.

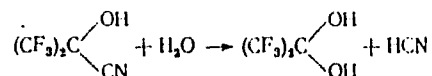


(I) can be distilled at atmospheric pressure without  
decomposition but, in the presence of piperidine, (I)  
is decomposed to HCN and hexafluoroacetone. (I) is  
partially hydrolyzed in the presence of water at room  
temperature, forming hexafluoroacetone hydrate and HCN.

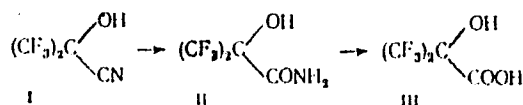
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Brief Communications. Fluorinated Ketones.  
Bis-(trifluoromethyl)-glycolic Acid

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SOV/63-4-6-26/37



(I) by moderate heating is hydrolyzed to amide of bis-(trifluoromethyl)-glycolic acid (II) and, under drastic conditions, bis-(trifluoromethyl)-glycolic acid (III) is formed.



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The obtained compounds, starting materials, yields, and properties are given in the table below:

Brief Communications: Fluorinated Ketones.  
Bis-(trifluoromethyl)-

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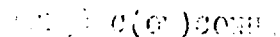
Re-

Starting Materials

I

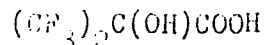
Hexafluoroacetone + HCN  
+ phosphorus

II



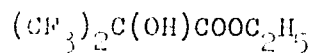
I +  $\text{H}_2\text{SO}_4$

III



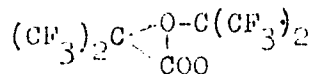
I +  $\text{H}_2\text{SO}_4$

IV



III +  $(\text{C}_2\text{H}_5)_2\text{O} + \text{H}_2\text{SO}_4$

V

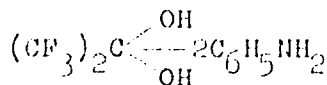


I + hexafluoroacetone  
hydrate +  $\text{H}_2\text{SO}_4$

VI

Anhydride of bis-  
(trifluoromethyl)-  
glycolic acid

VII



V +  $\text{C}_6\text{H}_5\text{NH}_2$

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Brief Communications. Fluorinated Ketones  
Bis-(trifluoromethyl)-glycolic Acid

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SOV/63-4-6-26/37

Yield (%)	mp	bp	$d_4^{20}$	$n_D^{20}$
61.2	-	107.5	1.5585	1.298
29.6	71-73	-	-	-
62.2	78-82	153-155	-	-
90.6	-	120	1.424	1.3270
15.0	-	84-85	1.7189	1.2885
80.2	101-102	-	-	-
29.7	64-65	-	-	-

There is 1 table; and 11 references, 4 Soviet, 3 German, 1 Dutch, 1 French, 2 U.K. The U.K. references are: R. A. Darrall, F. Smith, M. Stacey, J. C. Tatlow, J. Chem. Soc., 1951, 2329; M. W. Buxton, M. Stacey, J. C. Tatlow, ibid, 1954, 366.

ASSOCIATION: Institute of Element-Organic Compounds, Academy of Sciences, USSR (Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR)

SUBMITTED: July 18, 1959

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24(5)

SOV/56-36-2-48/63

AUTHORS:

Bochvar, D. A., Gambaryan, N. P., Stankevich, I. V.,  
Chistyakov, A. L.

TITLE:

On Some Properties of Symmetry of the Eigenfunctions of the  
Equation of Schrödinger (O nekotorykh svoystvakh simmetrii  
sobstvennykh funktsiy uravneniya Shredingera)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 2, pp 626-627 (USSR)

ABSTRACT:

The present paper deals with 2 facts hitherto (according to the  
authors' opinion) not discussed in literature. 1) The symmetry  
groups of the eigenfunctions of the Schrödinger (Shredinger)  
equation are subgroups of the symmetry group  $G_H$  of the corre-  
sponding Hamiltonian  $\hat{H}$ . 2) The contrary of statement 1) is  
not true, i.e. there are no subgroups of the group  $G_H$  which are  
not symmetry groups of the eigenfunctions of a given  
Schrödinger equation. The proofs of the correctness of these  
2 assertions are discussed step by step. The groups of the  
solutions of a Schrödinger equation with a total system of eigen-  
functions consist of all the possible co-kernels of the symmetry

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SOV/56-36-2-48/63

On Some Properties of Symmetry of the Eigenfunctions of the Equation of  
Schrödinger

group of the Hamiltonian. There are 3 references, 1. of which is  
Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR  
(Institute of Element-Organic Compounds of the Academy of  
Sciences, USSR)

SUBMITTED: October 25, 1958

Card 2/2

AUTHORS: Bochvar, D. A., Gambaryan, N. P. (Moscow) S/076/60/034/03/002/038  
B115/B016 71

TITLE: The Electron Gas Method and Determination of the Electronegativity  
Differences of Atoms

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 505 - 509 (USSR)

TEXT: When calculating the electronegativity difference of atoms forming a conjugate molecular system by means of the electron gas method, this difference is usually expressed by the rectangular depression  $\Delta U$  of the bottom of the potential well at the site corresponding to the hetero atom. Among others, M. G. Veselov and T. N. Rekasheva (Refs 1 - 3) dealt with this problem. In the present paper the authors made the attempt to use the electron gas method for determining the electronegativity difference of atoms forming biatomic molecules. The model of the molecule was represented by means of a step-potential well with finite walls (Fig 1,a), in which connection the depth of various sections of the well, corresponding to different atoms of the molecule, were to be determined on the strength of the ionization potential and the spectrum of the molecule. The carbon monoxide molecule was chosen as the model investigated, with preceding investigation of the applicability of the electron gas method to biatomic molecules with  $\pi$ -electrons by the example of the nitrogen molecule. By assuming a simple

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The Electron Gas Method and Determination of the  
Electronegativity Differences of Atoms

S/076/60/034/03/002/038  
B115/B016

potential well model for the nitrogen molecule its depth was determined from the ionization potential which is set equal to the distance of the upper level from the rim of the well (Fig 1b). The solution of the problem concerning a simple potential well with finite walls gives equations (1) and (2) between the energy levels  $\epsilon$ , their distance from the bottom of the well ( $U - \epsilon$ ), and its length  $L$ . Equation (2) gives a calculable number of roots all of which are in the range  $(n - 1)\pi < y_n < n\pi$  (Fig 2). The values of the roots within the given ranges increase with monotone increasing equation coefficient ( $kL$ ) (Fig 3). The equation (3) derived has a finite number of roots each of which lies in the above-mentioned range (Fig 4). The values of the roots within the ranges increase monotonically with increasing equation coefficient ( $wL$ ) (Fig 5). The method used for the nitrogen molecule was also applied to the carbon monoxide molecule. On the basis of the investigation performed it may be stated summarizingly that the determination of the electronegativity difference of two atoms in bimolecular molecules with  $\pi$ -electrons from their ionization potential and the first electron transition by the potential well method seems theoretically possible, but has no practical importance since the difference to be determined is too sensitive to small changes in the initial energy values. There are 5 figures and 18 references,

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The Electron Gas Method and Determination of the  
Electronegativity Differences of Atoms


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B115/B016

5 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy (Institute of Elemental-  
organic Compounds)

SUBMITTED: March 21, 1958

Card 3/3



KNUNYANTS, I.L.; CHEN' TSIN-YUN' [Ch'ên Ch'ing-yün]; GAMBARYAN, N.P.

Reaction of hexafluoroacetone with compounds containing active methylene groups. Zhur. VKHO 5 no.1:112-113 '60. (MIRA 14:4)

1. Institut elementoorganicheskikh sovedineniy AN SSSR.  
(Propanone) (Methylene group)

CHEN 'TSIN-YUN'; GAMBAYARN, N.P.; KNUNYANTS, I.L., akad.

Bond conjugation in 1,1-bis(trifluoromethyl)-2-nitroethylene and  
hexafluoroisopropylidenemalononic ester. Dokl.AN SSSR 133 no.5:  
1113-1116 Ag '60. (MIRA 13:8)

1. Institut elementoorganicheskikh soyedineniy Akademii nauk  
SSSR.

(Chemical bonds) (Malonic acid) (Ethylene)

ROKHLIN, Ye.M.; GAMBARYAN, N.P.; CHEN' TSIN-YUN' [Ch'ên Ch'ing-yün];  
KHUNYANTS, I.L., akademik

2-Phenyl-4-hexafluoroisopropylidene-5-oxazolone. Dokl. AN SSSR 134  
no.6:1367-1370 O '60. (MIRA 13:10)

1. Institut elementoorganicheskikh soedineniy Akademii nauk SSSR.  
(Oxazolinone)

86044

S/020/60/135/003/028/039  
B016/B054

53600

AUTHORS: Rokhlin, Ye. M., Gambaryan, N. P., and Knunyants, I. L.,  
Academician

TITLE: Mobility of Fluorine Atoms in Derivatives of Benzamido  
Hexafluoro Dimethyl Acrylic Acid ✓

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 3,  
pp. 613 - 616

TEXT: The authors report on their investigations of the saponification of fluorine atoms of the trifluoro methyl group in  $\alpha$ -benzamido hexafluoro dimethyl acrylic acid (I) and its derivatives. They proved that fluorine atoms are very easily saponified. In the reaction with a saturated  $\text{NaHCO}_3$  solution at room temperature, (I) is transformed into the salt of 1-benzamido-2-trifluoro-methyl-ethylene-1,2-dicarboxylic acid (II). The authors state that (III), the esters of acid (I), behave similarly; but 2-phenyl-4-carbalkoxy-5-trifluoro-methyl-1,3-oxazinones-6 (V) are also formed besides the acid esters (IV) of acid (II). In the authors' opinion, this is due to a cyclization of the intermediate acid fluorides (VI). By a Card 1/4

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Mobility of Fluorine Atoms in Derivatives of Benzamido Hexafluoro Dimethyl Acrylic Acid S/020/60/135/003/028/039  
B016/B054

reaction of acid esters (IV) with diazomethane, the authors obtained corresponding saturated esters: dimethyl ester (VII) and methyl-ethyl ester (VIII). (VII) is also formed in the methylation of the dicarboxylic acid (II) with diazomethane, whereas (VIII) is formed by a reaction of 2-phenyl-4-carbethoxy-5-trifluoro-methyl-1,3-oxazinone-6 with methanol in the presence of triethylamine. The saponification of the trifluoro methyl group in acid (I) and its derivatives proceeds easily, not only in alkaline medium. When boiling acid (I) with the hydrochloric acid solution of 2,4-dinitro-phenyl hydrazine, the authors isolated the 2,4-dinitro-phenyl hydrazone of  $\alpha$ -trifluoro-methyl malonic semialdehyde (X). In the authors' opinion, this is due to a decarboxylation and saponification of one of the trifluoro methyl groups. The authors explain the very easy saponification of the trifluoro methyl group in acid (I) and its derivatives by the conjugation of the C-F bonds not only with the C=C double bond but also with the unseparated electron pair of the nitrogen atom. There are 4 references: 1 Soviet, 1 US, and 2 British.

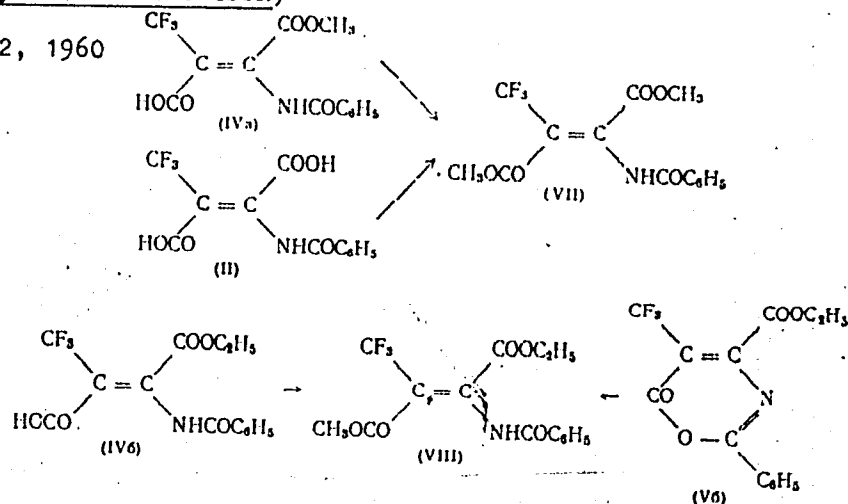
Card 2/4

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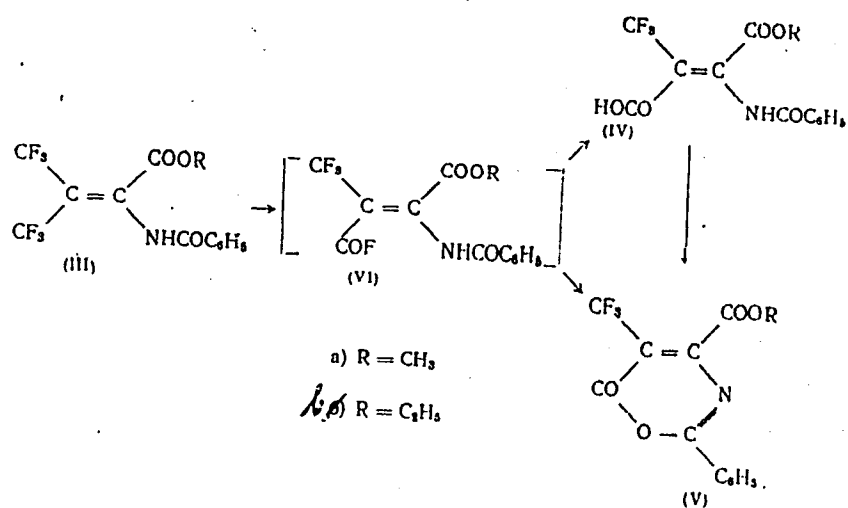
Mobility of Fluorine Atoms in Derivatives of Benzamido Hexafluoro Dimethyl Acrylic Acid S/020/60/135/003/028/039  
B016/B054

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences USSR)

SUBMITTED: July 12, 1960



Card 3/4



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Card 4/1



KNUNYANTS, I.L.; MYTSLIN, S.Ye.; GARDANIAN, I.P.

$\beta$ -Lactams. Report No. 4: Synthesis of 3,2-diphenyl-2-azetidinones.  
Izv. AN SSSR. Otd. khim. nauk no. 1:63-66 Ja '61. (MIRA 14:2)

1. Institut elementoorganicheskikh sovedineniy AN SSSR.  
(Azetidinone)

PLAKHOVA, V.F.; GAMBARYAN, N.P.

Hexafluoroacetone in the Wittig reaction. Izv. AN SSSR Otd.khim.-  
nauk no.4:681-684 Ap '62. (MIRA 15:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Acetone) (Wittig reaction)

KNUNYANTS, I.L.; GAMBARYAN, N.P.; CHEN' TSIN-YUN' [Ch'ên Ch'ing-yün];  
ROKHLIN, Ye.M.

Certain reactions of hexafluoroacetone. Izv.AN SSSR Otd.khim.-  
nauk no.4:684-692 Ap '62. (MIRA 15:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Acetone)

ROKHLIN, I.M.; GAMBARYAN, N.P.; KNUNYANTS, I.L.

Interaction of hexafluoroacetone with 2-phenyl-4-benzyl-5-oxazolone.  
Izv. AN SSSR. Otd.khim.nauk no.5:927-929 My '62. (MIRA 15:6)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Acetone) (Oxazolinone)

GAMBARYAN, N.P.; NESMEYANOVA, G.S.; KNUNYANTS, I.L.

Synthesis of bis-epoxypropyl ether of 2,2-bis-(p-oxyphenyl)-  
hexafluoropropane and of a copolymer based on it. Zhur.VKHO 7  
no.2:231 '62. (MIRA 15:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Ethers) (Epoxy resins)

KNUNYANTS, I.L.; RYTSLIN, E.Ye.; GAMBARYAN, N.P.

Steric factors in the reaction of dehydrobromination of amides of  
 $\beta$ -bromo-substituted acids. Zhur.ob.khim. 32 no.4:1262-1274  
Ap '62. (MIRA 15:4)  
(Amides) (Hydrobromic acid) (Steric hindrance)

KNUNYANTS, I.I.; GAMBARYAN, N.P.; ROKHLIN, Ye.M.

2-Phenyl-4-hexafluoroisopropyl-5-benzoyloxyoxazole. Izv. AN SSSR.  
Otd.khim.nauk no.5:924-926 My '62. (MIRA 15:6)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Oxazole)

ROKHLIN, Ye.M.; GAMBARYAN, N.P.; KNUNYANTS, I.L.

Reaction between 2-phenyl-4-hexafluoroisopropylidene-5-oxazolone and ketene. Izv. AN SSSR. Ser. khim. no.11:1952-1958 N '63. (MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.



ROKHLIN, Ye.M.; GAMBARYAN, N.P.

N-benzoyl- $\alpha, \beta$ -bis-(trifluoromethyl)-dl-glutamic acid in  
the Borodin reaction. Izv. AN SSSR. Ser. khim. no.11:1959-  
1966 N '63. (MIRA 17:1)

1. Institut elementoorganicheskikh sovedineniy AN SSSR.

ZEYFMAN, Yu.V.; GAMBARYAN, N.P.; KNUNYANTS, I.L., akademik

Hexafluoroacetone imines. Dokl. AN SSSR 153 no.6:1334-1337  
D '63. (MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 16932-65 EWT(m)/EPT(o)/EPR/EWP(j)/T Fc-L/Pr-L/Fs-L RPL WW/RM

ACCESSION NR: AP5002836

S/0062/64/000/008/1526/1528

AUTHOR: Gambaryan, N. P.; Cheburkov, Yu. A.; Krutyents, L. L.

TITLE: Pinacone from hexafluoracetone 7

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SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 8, 1964, 1526-1528

TOPIC TAGS: acetone, organic phosphorus compound, fluorinated organic compound

Abstract: The reaction of hexafluoracetone with triethylphosphite was investigated and dodecafluoropinacol was synthesized. Hexafluoracetone reacts vigorously with triethylphosphite to form the 2:1 adduct, which is a saturated cyclic phosphorane. The strong electron-acceptor action of trifluoromethyl groups so weakens the basic properties of fluorated pinacol that it does not participate in the pinacol regrouping even upon prolonged boiling in 100% sulfuric acid. Cyclic phosphorane was obtained by adding 32 grams of perfluoracetone to 16.8 grams of triethylphosphate. The product was 41.4 grams of liquid with a 61-62° boiling point (0.5 mm), freezing at -9 - -8°;  $n_D^{20} = 1.3555$ . Phosphorane is a colorless liquid, insoluble in water, soluble in alcohol, acetone, ether, and benzene. It does not decolor  $KMnO_4$  solutions.

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L 16932-65

ACCESSION NR.: AP5002836

Dodecafluoropinacone was obtained by boiling 55 grams of the acid obtained by saponifying phosphorane with concentrated sulfuric acid, one hour in 100 ml of water. Sulfuric acid was added to the cooled mixture and the resulting product was repeatedly extracted with methylene chloride. 27 grams (61%) of pinacol was obtained by distillation, with a boiling point of 89-89.5° (60 mm); upon cooling it congealed into colorless crystals with a melting point of 18-20°. Orig. art. has 11 formulas.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR  
(Institute of Elemento-Organic Compounds, Academy of Sciences, SSSR)

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